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MINORITY PHYSICIANS: A PROFILE

U.S. Department of Health & Human Services
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Minority Physicians: A Profile

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Executive Summary
Minority Physicians: A Profile

How many African American, Hispanic, or other minority physicians are there in the United States? Are their numbers growing, and if so, how fast? Do these physicians differ from other doctors in the specialties they practice, where they locate, the type of patients they serve, or the remuneration they receive? Do minority women have different practice patterns than minority men? What bearing does the number of minority physicians have on the access of minorities to health care, now or in the future?

The number of minority physicians in the United States is a significant public issue. Since black and Hispanic physicians are more likely to serve poor and minority patients, a relative scarcity of these physicians works against increasing access to health care for medically underserved populations.

Despite the increase in their numbers in the general population over the past few decades, blacks, Hispanics, and American Indians are still underrepresented among physicians. It seems unlikely that the set of dynamics now in place will eliminate the underrepresentation of minorities in medicine in the foreseeable future. As we assess the future supply of minority physicians, it is clear that we will have to run hard to stay in place, and even harder to get ahead.

Supply of Minority Physicians

- **How many?** African Americans, Hispanics, and American Indians are underrepresented among physicians in the United States. Estimates based on the 1990 Census suggest that, out of a total 549,945 U.S. physicians, 19,566 are African American (3.6 percent of all physicians), while African Americans made up 11.7 percent of the U.S. population in 1990. Similarly, there were 26,977 Hispanic physicians (4.9 percent of physicians) while Hispanics made up 9.0 percent of the population. Only one-tenth of 1 percent of physicians were American Indian, but Indians made up close to 1 percent of the population. These are the same groups that were recognized as underrepresented among medical students in the late 1960s. For Asians, the situation is reversed: 11.8 percent of physicians and 2.8 percent of the population are Asian. Asians, then, are not underrepresented among physicians.
- **Physician-to-population ratios.** Today, there are about 221 physicians available to serve every 100,000 people in the United States. For the underrepresented minority population, however, the ratios are much lower—67 black physicians for every 100,000 African Americans and 121 Hispanic physicians for every 100,000 Hispanics. Although the numbers of black, Hispanic, and American Indian physicians are rising, minority population growth is rising

even faster. By the year 2000, physician-to-population ratios are projected to fall for Hispanics to about 94 per 100,000, although they will improve slightly (77 per 100,000) for blacks.

Minority Medical Students: The Pipeline

● **The number of underrepresented minority graduates has plateaued since the 1970s.** In the 1991-1992 academic year, 850 African Americans, 842 Hispanics, 63 American Indians, and 1,920 Asians graduated from U.S. medical schools. The number of underrepresented minorities graduating from medical school, after rising sharply in the late 1960s and early 1970s, has been about the same since 1975.

● **Medical-school costs rising.** Medical-school costs have been rising steadily for a decade. In 1991, the median annual tuition and fees at a private U.S. medical school was $18,930, compared with $7,910 a decade earlier. Costs also rose sharply for state schools, although they remain lower than for private schools. On graduation from medical school, minorities are more likely to have educational debts than other students and debt loads that are slightly higher.

How Young Minority Physicians Differ from Others

A new analysis of a 1987 nationally representative survey of young physicians provides important insights into the practice patterns of young minority physicians and how they differ from those of white physicians.

● **Higher proportion of women among black physicians.** Almost one-third of young black physicians—compared with about one-fifth of white and Hispanic physicians—are women. The larger proportion of black women reflects their growing enrollment in medical schools during the 1970s and 1980s.

● **Where minorities practice.** Most young minority physicians practice in urban areas. Only one out of every ten young minority physicians, compared with two out of ten young white physicians, practice in rural areas. Mismatches between the location of minority physicians and minority populations occur in certain regions of the country. About 45 percent of all U.S. Hispanics live in the West, yet only 26 percent of young Hispanic physicians practice there. About 53 percent of African-Americans live in the South, but only 46 percent of young black physicians practice there.

● **Primary care.** A somewhat higher proportion of young minority than white physicians practice medicine in the primary-care specialties (family or general practice, pediatrics, or general internal medicine). Women are more likely than men to be in primary care. Yet, the actual numbers of young minority physicians in primary-care specialties remain small: for example, there are only about 350 young black and 350 young Hispanic pediatricians in the United States. There are indications that interest in practicing primary-care medicine may be dwindling, even among minority physicians.

- **Nonprimary-care specialties.** Blacks are twice as likely as whites to be in obstetrics/gynecology—the proportion is boosted by the higher representation of women among black physicians. The distribution of Hispanics among the specialties generally resembles that of whites.

- **Ownership of practice.** One-quarter of young physicians are in solo practice. This arrangement is more common for minorities than for whites. Although those who are self-employed are more likely to be in solo practice, black physicians on the whole are less likely than others to be self-employed. About half of young black physicians are in salaried positions.

- **Service to poor and minority patients.** Young black and Hispanic physicians are more likely to serve members of their own race and ethnic group than are other physicians. On average, blacks make up half the patient load of young black physicians but only about one-tenth of the patient-load of other physicians. Hispanics make up about one-fifth of the patient-load of Hispanic physicians but only one-twentieth of the patient-load of other physicians. Young black physicians are the most likely group to serve low-income patients.

- **Blacks earn least.** Young black physicians reported an average (median) income of $66,000 per year, lower than the comparable figure for Hispanics and whites ($75,000). Women in all race/ethnic groups earn less than their male counterparts, partly because women physicians tend to work fewer hours. White and "other" minority women earned the least, $60,000 per year.

Minority Physicians: A Profile

I. MINORITY DOCTORS: THE CONTEXT

How many African American* physicians practice in the United States? How many physicians are Hispanic, or members of other minority groups? Are the numbers growing, and if so, how fast? Do these physicians differ from other doctors in the specialties they practice, where they locate, type of patients they serve, or remuneration they receive? Do minority women have different practice patterns from minority men? What bearing does the number of minority physicians have on the access of minorities to health care, now or in the future?

These are important questions, and this report highlights what we know of the answers. Changes in the race, ethnicity, and gender composition of physicians are most dramatic among younger doctors, more of whom have recently entered the profession. The makeup of a whole profession changes more slowly. Therefore, this report begins by examining trends in minority medical-school enrollment—which is the gateway to the profession—and explores in greater depth than ever before a nationally representative telephone survey of young physicians conducted by the American Medical Association in 1987. The report also reviews other research in the area and provides an overview of numbers of minority physicians based on Census Bureau estimates. However, information on the characteristics of minority physicians and their practice patterns remains scarce. Such information is especially limited for Native American and Asian physicians.

Who Is Underrepresented?

For the past two decades there have been sustained efforts in both the public and private sectors to increase the representation of minorities in the medical community. But determining which groups are underrepresented and therefore in need of assistance often depends on the minority definitions used to make this assessment. The Association of American Medical Colleges (AAMC) and other organizations use the population parity model, which classifies a group as underrepresented if the percentage of physicians in a particular race or ethnic group is markedly less than that group's percentage in the U.S. population. The medical education community has recognized African Americans, American Indians, and Hispanics (particularly Mexican Americans and mainland Puerto Ricans) as historically underrepresented among physicians and other health professionals. For example, in 1970, blacks accounted for about 11 percent of the U.S. population, but only about 2 percent of U.S. physicians.[1]

*In this report, "African American" and "black" are used interchangeably.

Table 1
Racial and Ethnic Composition of Current Medical-School Graduates vs. U.S. Population

Race/Ethnicity	Medical-School Graduates (1991-1992)	U.S. Population 1990	U.S. Population 2020
Not of Hispanic origin			
White	75.0	75.7	63.9
African American	5.5	11.7	13.3
Asian American	12.5	2.8	6.8
American Indian	0.4	0.7	0.9
Hispanic origin	5.6	9.0	15.2
Total	100.0	100.0	100.0

Note: American Indian includes Eskimo and Aleut; Asian includes Pacific Islander.
Source: *AAMC Data Book,* 1993; Census Bureau, *Population Projections of the United States, by Age Sex, Race, and Hispanic Origin: 1992 to 2050,* P-25, No. 1092, 1992.

Not all minorities are underrepresented among physicians or medical students. While Asians now comprise about 3 percent of the U.S. population, they represent 12.5 percent of all recent medical-school graduates (see Table 1). The proportion of African-American medical-school graduates is about 50 percent below their percentage of the population, while the proportion of Hispanic medical-school graduates is about one-third below their population percentage.

Although the number of underrepresented minorities who graduate from U.S. medical school has increased nearly five-fold since the early 1970s,[2] minority growth trends in the population as a whole suggest that, unless greater effort is made to recruit and graduate underrepresented minority medical students, their share of the physician population will slip even lower than it is today. The size of the U.S. minority population will increase faster than the non-Hispanic white population. By 2020, almost one of every four Americans will be either Hispanic or African American, compared with one in five today. The medical profession will have to exert greater effort to recruit and educate minority physicians just to remain at current levels, much less to reach parity, given the nation's changing population dynamics.

Change in the racial and ethnic composition of physicians is also occurring in the context of larger employment trends. In the health-related professions, minorities and women have made significant inroads in occupations such as dentists, pharmacists, and optometrists, which were once overwhelmingly the province of white men. The biggest gains occurred in the 1970s, but the levels plateaued in the 1980s.[3] The picture is one of continuing underrepresentation of some minority groups in the health professions generally. There are also relatively few minority faculty in U.S. medical schools. According to the AAMC, only about 4 percent of U.S. medical school faculty in 1992 were underrepresented minorities. This translates into a lack of role models and advocates on admissions committees for minority students. Additionally, the presence of minority faculty in some schools has been shown to be positively associated with the graduation rates of minority students.[4]

The Department of Health and Human Services' 1991 initiative *Healthy People 2000* recognized as one of several priority areas the encouragement of "an increase in the proportion of all degrees in the health professions . . . awarded to members of underrepresented racial and ethnic minority groups."[5] This report, *Minority Physicians: A Profile,* is largely concerned with the tradition-

ally underrepresented minorities in medicine—African Americans, American Indians, and Hispanics.

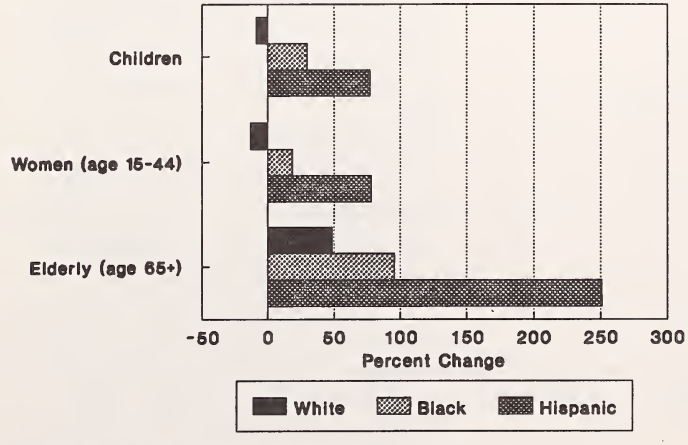
Growing Need for Minority Physicians

Underrepresentation of minorities among physicians and other health professionals is more than an issue of equity. Studies have shown that black, Hispanic, and Native American health care providers "are more likely to provide services to minorities and other disadvantaged groups than white providers...."[6] To paraphrase an observation on black physicians: The minority community needs access to black physicians, not because minority physicians have better technical skill or a better knowledge base or more compassion, but because minority physicians are more likely to have a better understanding of the cultural and social context of illness and disability among minorities and are more likely to communicate effectively with minority patients.[7] For the growing U.S. Hispanic population, which is increasing rapidly through immigration, there is also concern about language barriers.

Demographics, again, make a compelling backdrop for understanding future needs (see Figure 1). Over the next 30 years, the number of minority children will increase 30 percent for blacks and 80 percent for Hispanics. The number of black women in their childbearing years will grow 20 percent while Hispanic women of childbearing age will increase by 80 percent. During this same period, the number of white children and white women of childbearing ages will decline. Only the elderly population (age 65 and older) will increase for all race and ethnic groups, but growth will be two times faster among African-Americans and five times faster among Hispanics than for the non-Hispanic white population. These groups—children, women of childbearing age, and elderly—are the populations most likely to need medical services.

Minorities, on average, have poorer health status than others.[8] Life expectancy for African Americans has been trending downward since the mid-1980s, while slowly rising for the population as a whole. The infant mortality rate (deaths of infants under age one per 1,000 live births) for blacks is nearly double that for the white population. Blacks tend to be diagnosed later and to seek treatment later than whites for many chronic conditions. Blacks and Hispanics are at higher risk for contracting AIDS, and even a relatively common disease such as diabetes is more likely to be fatal among Hispanic men than white men. African Americans and Hispanics are less likely to have health insurance and more likely to rely on emergency room care. As the nation re-evaluates its health-care system, closing the gap

Figure 1
Growth of Populations with High Demand for Medical Services, 1992-2020



Source: U.S. Bureau of the Census, Series P-25, No. 1092.

between minorities and whites is likely to become a key consideration.

Change generally happens slowly. Because the medical profession requires years of training, it is best to begin by looking at the pipeline to the future—that is, the efforts of medical schools to recruit, enroll, and graduate minority students. This report will then examine the findings of a nationally representative survey of young physicians taken in 1987, and finally it will look at all physicians in relation to the future needs of the growing U.S. population.

MINORITIES IN MEDICAL SCHOOL

Before the late 1960s, minority students wanting to attend medical school faced several major impediments: segregated educational institutions (the last U.S. medical school removed its color bar to admission in 1966); unwritten discriminatory policies and customs; and, often, lack of financial resources. Between 1920 and 1964, no more than 3 percent of students entering American medical schools were black—the largest minority group at that time. The great majority of these students attended two traditionally black medical schools (Howard University Medical School, in Washington, D.C., and Meharry Medical College in Nashville, Tennessee).[9] While formal barriers to admission have been eliminated, several factors continue to constrain the number of minority medical-school candidates: the lack of financial resources, weakness in the educational preparation of minority students at all levels, a scarcity of role models, and a lack of early intervention to identify and develop talented young people.

Numbers Grow

In 1968, AAMC, representing the country's medical schools, endorsed the policy that minority representation in medical school should be increased. The initial goal, as stated at that time, was that the medical student population would be "representative of the overall population—that is, at least 12 percent of the total entering class would be black, and 4 percent other underrepresented minorities" (including American Indians, Mexican Americans, and mainland Puerto Ricans).[10]

These initiatives, encouraged by the availability of federal and private philanthropic funding for minority student recruitment and scholarships, served a variety of public policy goals.[11] A study of medical-school graduates during the mid-1970s found that the practice patterns of minority physicians were more likely than other physicians to fulfill the policy goals of increasing health services to medically underserved groups.[12] Minority physicians were more likely to serve minority patients in the context of a patient population that "was more integrated than it apparently had been in the 1950s and 1960s." Black patients made up more than half the total caseloads of black physicians, but less than 15 percent of other physicians; Hispanic patients comprised 30 percent of the caseloads of Hispanic physicians, but less than 10 percent of others. Minority physicians also served a higher percentage of Medicaid recipients than other physicians (31 percent of black physician's patients were on Medicaid, 24 percent for Hispanic physicians, and 14 percent for white physicians). Also, a larger proportion of minority physicians (41 percent versus 34 percent) chose the primary-

care specialties of family practice, general internal medicine, and pediatrics, and were twice as likely to choose obstetrics/gynecology. In addition, minority physicians were almost twice as likely as nonminority physicians to be practicing in federally designated health-manpower shortage areas (12 percent versus 6 percent).

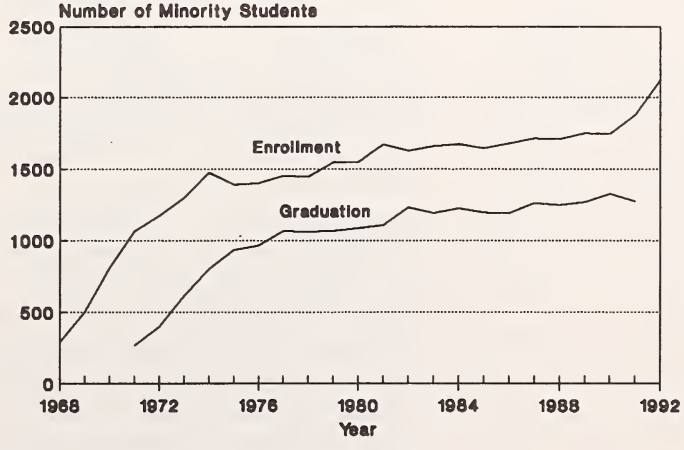
Affirmative action programs in medical schools were challenged in the early 1970s. Litigation on behalf of Allen Bakke, a white applicant to the University of California Medical School at Davis, argued that affirmative action programs were a form of "reverse discrimination" because they allegedly set quotas for the admission of minority applicants. In 1974, the Supreme Court ruled that "the University of California had failed to demonstrate that quotas were necessary to achieve diversity," but that race could legitimately be included among the factors in admissions procedures. Although many minority admissions programs "remained intact . . . , the overall momentum of affirmative action was lessened" after the Supreme Court ruling.[13]

Between the 1968-1969 and 1974-1975 academic years the number of underrepresented minority students enrolled as first-year medical students increased five-fold from 292 students to 1,473—or an increase from 3 percent to 10 percent of all first-year students (see Figure 2).[14] After that time, however, enrollment of underrepresented minority students plateaued at around 1,400 students per year (or 9 percent of total first-year enrollment). Enrollment took a slight upturn in the early-1980s and increased substantially after 1990. In the fall of 1992, there were 2,121 first-year medical students from underrepresented groups, or about 12 percent of all first-year medical students. Although this is the largest proportion of underrepresented minorities ever to enroll in medical school, it still falls short of the AAMC goal of population parity.

Data on graduation of underrepresented minorities from medical school show fairly parallel trends to enrollment patterns. There was a large increase in the number of underrepresented minorities graduating from medical school between 1972 and 1978, followed by a long plateau. Unlike enrollment trends that show a significant upturn in the early-1990s, graduation trends remain fairly flat and indeed show a slight downturn in the most recent academic year, 1991-1992.

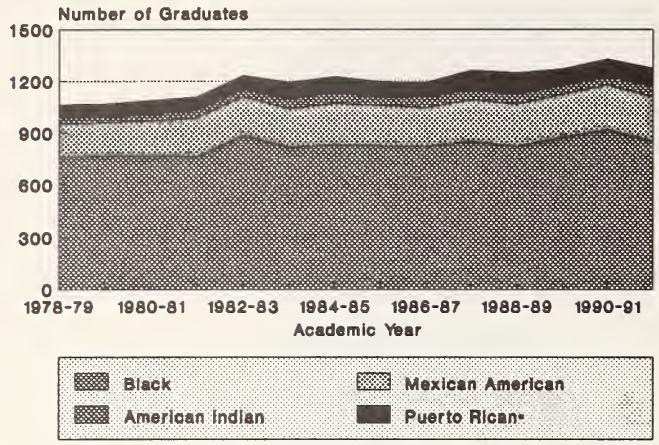
In the 1991-1992 academic year, 15,365 people graduated from U.S. medical schools. This total included 1,273 minorities considered underrepresented by AAMC (8 percent of total): 850 blacks, 63 American Indian, 259 Mexican Americans, and 101 mainland Puerto Ricans. In addition, there were also 210 Commonwealth Puerto Ricans and 272 other Hispanics, making a

Figure 2
Enrollment and Graduation of First-Year Minority Students in U.S. Medical Schools, 1968-1992



Source: *AAMC Databook,* Tables B3 and B5, 1993.

Figure 3
Underrepresented Minority Graduates of U.S. Medical Schools, 1978-1992



* Includes mainland Puerto Rican only.
Source: *AAMC Databook,* Table B5, 1993.

total of 842 Hispanics, and 1,920 Asians. Within the category of underrepresented minorities, the proportions of each race/ethnic group has remained fairly constant over the years (see Figure 3).

Difficulties in Raising Enrollment and Graduation Rates

The main constraints on increasing the number of minority physicians, according to a 1992 study, were too few applicants to medical school and the high financial costs of a medical education. Although high school graduation rates for minority students have increased in recent years, the proportion of minority students who go on to undergraduate and post-graduate educational programs remains substantially lower than for the white population. To overcome this barrier, the AAMC has concluded, greater attention must be given to the educational pipeline—that is, medical schools must develop programs to identify and nurture young talent in high schools and undergraduate colleges, and to encourage these students to apply to medical school.[15]

Of some concern is the declining number of African-American men in medical schools. All black enrollment gains since 1970 have been made by black women.[16] The number of black male applicants has declined since the mid-1970s, and by 1990 it was 39 percent below 1974 levels. This mirrors a trend observed among white medical students: women now represent about 38 percent of all white first-year medical students. For blacks, factors contributing to low levels of male applicants include "the pervasive effects of poverty on educational achievement," the decreasing number of black students who go on to college, and the declining popularity of the undergraduate biology degree.[17]

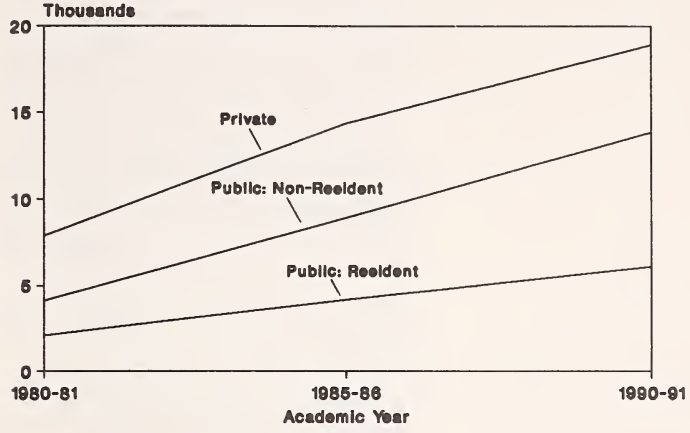
Even if students can be encouraged to apply to medical school, the high financial costs of attending can be daunting.[18] The median cost of attending medical school has risen steadily over the past ten years (see Figure 4). In the 1990-1991 academic year, median tuition and fees for one year at a private U.S. medical school was $18,930, compared with $7,910 a decade earlier. Costs also rose sharply for state schools but they remain lower than in private schools. Many minority advocates are concerned that the gates of access to U.S. medical schools may be closing on underrepresented minority students who are increasingly squeezed between rising tuition costs and the diminishing availability of financial aid.[19]

In 1990, only about 10 percent of minority medical-school graduates had no school debt—half the proportion of other students (see Table 2). One in five minority graduates

reported debt burdens of $75,000 or more on leaving medical school. The average (mean) debt among the minority graduates who had debt was $50,944. Although a substantial debt burden, this figure is only slightly higher than the $45,793 for all other graduates.

Minority medical students were similar to other medical students in their sources of student loans.[20] Among those who had debt, about nine in ten minority medical students in 1990 reported having received Stafford Student Loans (formerly GSLs). The other most frequently cited sources were the Health Education Assistance Loans (44.8 percent of minority students reported some funding from this source); Supplemental Loans for Students (43.5 percent), Health Professions Student Loan (33.5 percent), and university or medical-school loans (27.5 percent). Minority students were less likely than other students to obtain loans from family and friends. About 80 percent of minority medical students received scholarships in 1990 compared with 49 percent of other students.

Figure 4
Median Tuition and Fees of U.S. Medical Schools, 1980-1991



Source: *AAMC Databook,* Table E1, 1992.

Table 2
Levels of Indebtedness for Underrepresented Minority and All Other Medical-School Graduates, 1990.

Amount of Loan	Percent of Total	
	Minority	All Other
No debt	9.5	22.1
$1-$9,999	5.1	6.6
$10,000-$19,999	7.8	7.4
$20,000-$29,999	10.9	9.5
$30,000-$49,999	24.9	23.6
$50,000-$74,999	21.1	18.7
$75,000 or more	20.7	12.1
Total	100.0	100.0
Average debt for those who have debt	$50,944	$45,793

Source: Association of American Medical Colleges, *Minority Students in Medical Education Facts and Figures VI,* 1991.

YOUNG MINORITY PHYSICIANS

The early years of practice are a critical time in a young physician's career. These years help determine where physicians locate their practices, the type of practice established, the types of patients served, and the financial rewards and personal satisfaction derived from the practice. The Education and Research Foundation of the American Medical Association (AMA) conducted a national survey in 1987 of young physicians to learn more about these young professionals at the start of their careers and the characteristics of their practices.

In the AMA survey, a young physician was defined as an individual under age 40 who had been in practice more than one but fewer than seven years after completing residency and/or fellowship training. The survey was limited to those working at least 20

hours per week in patient care. The final sample contained responses from 5,865 physicians. Minority physicians were oversampled in the survey to provide a sufficient number of responses to permit detailed analysis of the data. The survey categorized minorities as black, Hispanic, and "other," a category that is probably largely Asian. However, the Young Physicians Survey did not report specifically on either Asian or Native American physicians. Most of the respondents graduated from medical school between 1974 and 1984. Findings of this study are presented below. (The survey methodology is described at the end of this report.)

Race, Ethnicity, and Gender

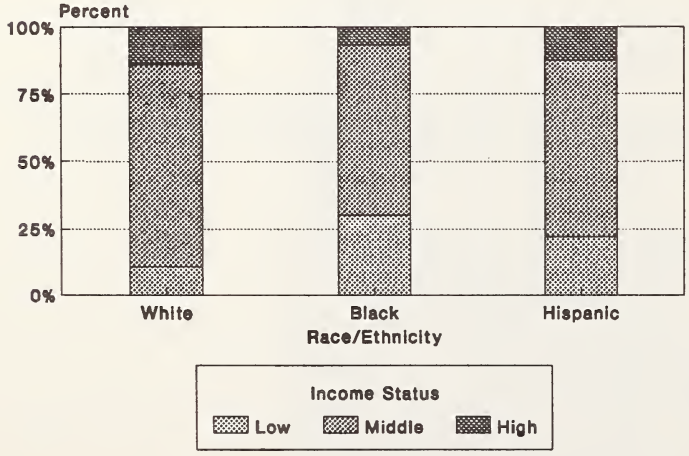
Of the estimated 66,700 young physicians in the United States in 1987, the AMA survey showed that about 54,200 (81.3 percent) were white. African Americans represented 3.7 percent of young physicians (2,500 in number), Hispanics were 4.0 percent (2,700), and all other minorities were 11.0 percent (7,300). These percentages are considerably lower than the proportions of African Americans and Hispanics in the U.S. population at that time (12 percent black and 8 percent of Hispanic origin), but closely resemble the share of underrepresented minorities graduating from U.S. medical schools during the previous decade (roughly 7 percent).

Almost one-third (31.8 percent) of young black physicians, but about one-fifth of white and Hispanic physicians were women. The larger proportion of women than men physicians among African Americans reflects women's increasing enrollment in medical schools during the 1970s and 1980s.

Family Background and Marital Status

Family background. Young physicians who come from underrepresented minority backgrounds often face tremendous barriers in seeking a medical education. They may lack the social and financial resources needed to put them on a level playing field with their classmates. Fully 30 percent of young black physicians and 22 percent of young Hispanic physicians reported coming from low-income families (see Figure 5). In contrast, only about 10 percent of white and "other" minority physicians did so. Black and Hispanic physicians were two to three times more likely than white physicians to indicate that their mother or their father had not graduated from high school, and young black physicians were about half as likely as others to have a parent who was a physician.

Figure 5
Economic Background of Young Physicians



Source: Young Physicians Survey, 1987.

Marital and family status. Establishing a medical practice can be very demanding in the early years. The AMA survey suggests that women, particularly underrepresented minority women, may defer marriage and childbearing in order to get their careers underway. While about 80 percent of young black and Hispanic male physicians were married in 1987, only 66 percent of their female counterparts were married. A similar pattern emerged for young white physicians, although the percentages married were somewhat higher (85 percent for white men, 75 percent for white women). "Other" minority physicians had the greatest likelihood of being married—86 percent for men and 85 percent for women.

If married, women physicians are more likely than men to have a physician spouse. But the two-physician couple is still a fairly rare occurrence. Overall, about 14 percent of survey respondents reported being in a two-physician marriage. African-American women were less likely than other groups to have this type of marriage partnership.

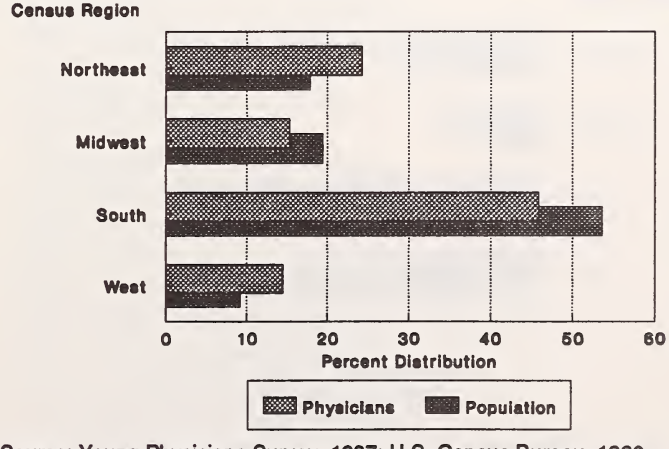
Starting a medical practice also affects the likelihood of a young female physician having young children, although this pattern varied widely by race and ethnic group. White and Hispanic physicians showed the greatest differences by gender. Sixty percent of Hispanic male physicians but only 45 percent of Hispanic female physicians had young children living at home. For whites, the difference was almost as great—64 percent of male physicians had young children, compared with 51 percent of female physicians. Among African Americans, just under half (49 percent) of the female physicians, but 54 percent of male physicians, had young children at home. Other minorities showed almost no gender difference in the presence of young children and were most likely to have children (around 63 percent for both men and women).

Combining marriage and family responsibilities, particularly child care, clearly affects the work patterns of young women physicians.[21] On average, women physicians worked fewer hours than men (11 fewer hours per week for blacks, 3 hours less for Hispanics).

Location

Where minority physicians locate their practices has important implications for their availability to serve minority patients. Under a population parity model, the "supply" of physicians should closely match the distribution of the population. There are significant mismatches between the location of minority physicians and minority populations. For example, about 54 percent of the African-American population lives in the South, but only 46 percent of young black physicians practice there (see Figure 6). A similar "shortage" of

Figure 6
Geographic Distribution of Black Physicians and the General Population



Source: Young Physicians Survey, 1987; U.S. Census Bureau, 1990.

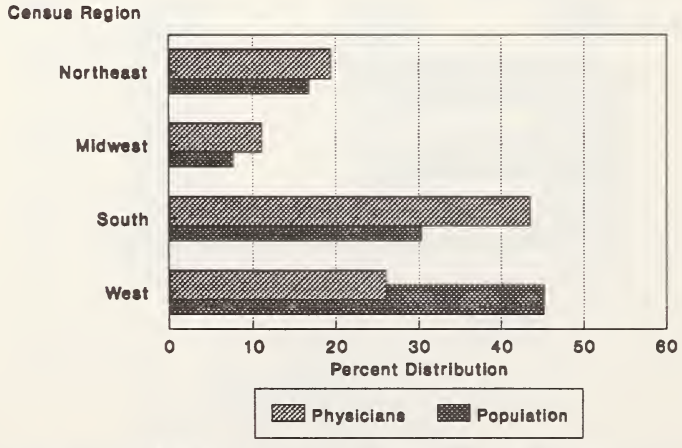
black physicians occurs in the Midwest, where about 19 percent of blacks live, but only 15 percent of young black physicians are located. These regional mismatches tend to exacerbate at a local level the nationwide underrepresentation of minority physicians.

Disparities are even greater for the Hispanic population (see Figure 7). About 45 percent of all U.S. Hispanics live in the West, yet only 26 percent of young Hispanic physicians practice there. A large proportion (44 percent) of young Hispanic physicians are located in the South. In part, this may reflect the large concentration of Cuban Americans in Florida.

Young minority physicians are highly concentrated in urban areas. About nine of every ten young black and Hispanic physicians practice in city and suburban areas, compared with eight of every ten young white physicians.[22] The minority population, however, is also highly urbanized. About 86 percent of U.S. minorities live in urban areas, compared with 75 percent of whites. These data suggest that the distribution of young minority physicians more closely approximates the rural-urban distribution of the population than the regional distribution.

Rural areas are most likely to feel the effects of an "undersupply" of physicians. About one in six African Americans live in rural areas, primarily in the South.[23] About one in sixteen young African-American physicians practices in the rural South. Only an estimated 150 young black physicians practice in the entire rural South. Because the number of minority physicians is small, the physician-to-population ratios are very small. The survey supplied no specific information on American Indian physicians, but half of all American Indians live in rural areas, many on reservations.

Figure 7
Geographic Distribution of Hispanic Physicians and the General Population



Source: Young Physicians Survey, 1987; U.S. Census Bureau, 1990.

Medical Specialty

The share of physicians in a primary-care specialty (including family or general practice, pediatrics, and general internal medicine) has implications for the entire health system and for minority health care. Many of the conditions and diseases that disparately effect African Americans and other minorities can be overcome by early detection, behavior modification, and preventive measures—activities that generally fall within the domain of a primary-care physician.[24] However, primary-care practitioners tend to earn less income than other physicians. Access to the well-paying specialties of medicine is an equity issue for many underrepresented minority physicians. A shortage or maldistribution of primary-care physicians for medically underserved populations has long been a concern of policymakers. This

Table 3
Medical Specialties of Young Physicians by Race/Ethnicity and Gender

Medical Specialty	Percentage of Physicians Who Are: White Male	White Female	White Total	Black Male	Black Female	Black Total	Hispanic Male	Hispanic Female	Hispanic Total	Other Male	Other Female	Other Total
Primary care												
Family/general practice	17.1	16.8	17.1	15.3	10.2	13.7	15.4	18.5	16.0	9.3	6.8	8.5
General internal medicine	13.3	13.6	13.4	11.9	22.9	15.4	16.9	14.2	16.4	19.4	14.8	17.9
Pediatrics	6.1	15.1	7.9	8.4	27.2	14.4	9.9	24.6	12.6	4.2	24.6	11.0
All primary care	**36.5**	**45.5**	**38.3**	**35.6**	**60.3**	**43.5**	**42.2**	**57.3**	**45.0**	**32.9**	**46.2**	**37.4**
Non-primary care												
Obstetrics/gynecology	5.1	10.0	6.1	13.0	14.1	13.3	5.7	7.4	6.0	4.2	5.7	4.7
Specialized internal medicine	15.4	9.3	14.2	14.5	5.2	11.6	11.3	2.9	9.8	21.8	8.3	17.3
General surgery	3.7	1.6	3.3	7.4	0.1	5.3	3.0	2.9	3.0	5.1	0.6	3.6
Specialized surgery	15.7	6.4	13.9	8.1	1.5	6.0	16.7	4.0	14.3	11.7	3.5	8.9
Radiology	4.9	4.7	4.9	1.5	5.1	2.7	1.6	3.4	1.9	5.1	6.5	5.5
Anesthesiology	4.9	5.5	5.0	5.9	1.1	4.3	5.4	7.9	5.9	7.3	6.9	7.2
Pathology	2.5	2.3	2.5	1.7	1.0	1.3	2.3	1.4	2.2	2.8	4.3	3.3
Psychiatry	3.6	6.1	4.1	6.8	6.2	6.6	4.2	7.5	4.8	5.4	5.9	5.6
Emergency medicine	2.9	2.2	2.7	1.0	1.2	1.0	1.2	2.3	1.4	1.1	0.5	0.9
Other specialities	4.7	6.3	5.1	4.4	4.1	4.3	6.3	3.0	5.7	2.7	11.6	5.7
All non-primary care	**63.5**	**54.5**	**61.7**	**64.4**	**39.7**	**56.5**	**57.8**	**42.7**	**55.0**	**67.1**	**53.8**	**62.6**
Total all specialties	*100.0*	*100.0*	*100.0*	*100.0*	*100.0*	*100.0*	*100.0*	*100.0*	*100.0*	*100.0*	*100.0*	*100.0*

Source: Young Physicians Survey, 1987.

issue may take on new prominence as policymakers search for ways to broaden health-care coverage while containing costs.[25]

Primary care. Less than half of the respondents to the 1987 Young Physicians Survey were in primary care. Although the proportions were higher for African Americans (44 percent) and Hispanics (45 percent) than for whites (38 percent) or other minorities (37 percent), the majority of young physicians chose a specialty outside of primary care (see Table 3).

What is more, these percentage comparisons can be misleading if taken as an indicator of how likely it would be for a primary-care patient to encounter a minority physician. Over half (62 percent) of the young primary-care physicians in the United States are white men, about 16,000 in number. In contrast, there are less than 600 black men, 500 black women, 1,000 Hispanic men, and 300 Hispanic women young physicians practicing primary care across the country. There are also about 1,600 men and 1,100 women of other minority groups among young primary-care physicians.

Some observers have pointed to minority physicians as important role models for young children and youth, but these data indicate that nationally there are only about 350 young black and 350 young Hispanic pediatricians—physicians that children encounter most often. A 1989 study found 1,212 black pediatricians of all ages (3.3 percent of all pediatricians)—

well below the 15 percent proportion of black children in the population at that time.[26]

In all race and ethnic groups, woman are more likely than men to become primary-care physicians. Among young male physicians, about one-third of whites, African Americans, and other minorities were primary-care physicians. Among Hispanic men, about 42 percent were primary-care physicians. In contrast, over half of young African-American (60 percent) and Hispanic (57 percent) women physicians were in primary care. Likewise, the proportions of young white women (46 percent) and other minority women (46 percent) in primary care exceeded their male counterparts.

While both African-American and Hispanic physicians are more likely than others to be in the primary-care field, different factors contribute to this outcome. For young Hispanic physicians, high proportions of both men and women are choosing primary-care practices. For African Americans, a combination of factors contribute to the higher shares. First, a greater share of African-American physicians are women, compared with other groups, and second, a higher proportion of African-American women physicians, compared with other women physicians, are choosing careers in primary care. These data support the findings of other researchers in this area.[27]

Interest in practicing primary-care medicine may be diminishing among minority and other medical-school graduates. In 1990, minority medical students were only slightly more likely than other medical students to plan residencies in primary care.[28] A 1989 study of graduates of the traditionally black Howard University Medical School found that only 30 percent were planning on primary-care practices.[29] A study of the 1987 senior class of U.S. medical schools also found a decreased interest in primary care and increased interest in medical specialties among all students, including minorities.[30] However, the study noted that minority students were more than twice as likely as the national norm to fail to be matched to their first choice of residency program, and suggested that some minority students may "end up in primary care not by desire but by default."[31] There is evidence of a possible gap between the desired and actual residency fields. In 1990, 43 percent of black residents and 46 percent of Hispanic residents were in primary care fields. In that same year, however, only 28 percent of minority medical school graduates indicated primary care as their first choice in specialty plans. While the demand for primary-care physicians is likely to increase in the future, the supply may be diminishing.

Nonprimary care specialties. More than half of all young physicians, regardless of race or ethnic origin, practice a specialty outside of primary care. Except for African Americans, the two most common specialties reported are specialized internal medicine and specialized surgery (see Table 3, page 11). (These fields are composites of sub-specialties such as cardiology and gastroenterology for internal medicine and orthopedic and urologic surgery for specialized surgery.) Between 24 and 28 percent of white, Hispanic or other minority physicians are in these fields. For young African-American physicians, the most common specialties are specialized internal medicine and obstetrics/gynecology (ob/gyn). One-quarter of all young black physicians are in these two specialties. The smallest percentage of physicians

(regardless of race/ethnicity) are in emergency medicine and pathology.

Although the distribution of specialties is fairly similar for whites and Hispanics, young African-American physicians are twice as likely as whites to be in ob/gyn, and half as likely as whites to be practicing specialized surgery. Young black physicians are more likely than whites to be in psychiatry.

About 13 percent of young black physicians are in ob/gyn, compared with 6 percent of young white physicians. This specialty has become increasingly practiced by women in recent years. The percentage of women ob/gyn specialists has more than doubled since 1970 and is expected to reach about 36 percent of all ob/gyn specialists by the year 2010.[32] At this time, about one-third of all young black women physicians who specialize are in ob/gyn. Because women represent a large share of the black physician population, this tends to increase the proportion of all black physicians who specialize in this field. Black women physicians, however, are somewhat more likely to choose this specialty than are their white counterparts. Young Hispanic women physicians are less likely to do so.

Despite the seemingly high percentages, minority ob/gyn practitioners compose only a very small proportion of all young ob/gyn specialists. Less than 3 percent of all young ob/gyn physicians are black women—about 110 in number. Less than half that many are Hispanic women. It would appear, then, that if a minority woman expresses a preference for a minority woman gynecologist or obstetrician, she might experience some difficulty in finding one.

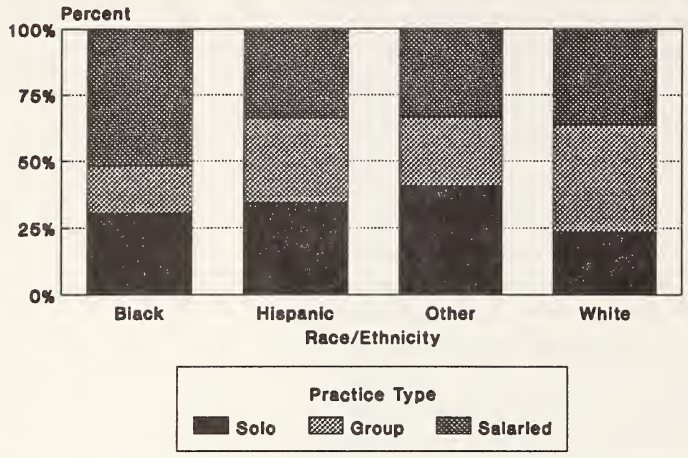
Young black physicians are about half as likely as young white physicians to practice in the well-paying field of specialized surgery (which includes orthopedic surgeons, heart surgeons, etc.). Only 6 percent of young black physicians, but 14 percent of young white physicians practice specialized surgery. This difference may result from several factors. First, these fields entail the longest training programs in the profession, which may discourage some heavily debt-burdened minorities from pursuing this type of training, although there is no clear evidence for this effect. Also, minority medical students contemplating a surgical specialty may fear that, despite the lowering of many discriminatory barriers in medicine, referral patterns to surgeons may be vulnerable to discrimination.

Practice Characteristics

Ownership arrangements of practice. Three types of ownership arrangements are most prevalent among young physicians: solo practice, group practice, and salaried arrangements such as an HMO, an academic institution, or government hospital. Ownership arrangements can influence the work content, hours, experience potential, location, short- and long-term income potential, security, and job amenities (such as larger office space or after-hours coverage by colleagues). In the United States today, the selection and prevalence of these different ownership arrangements are in transition.

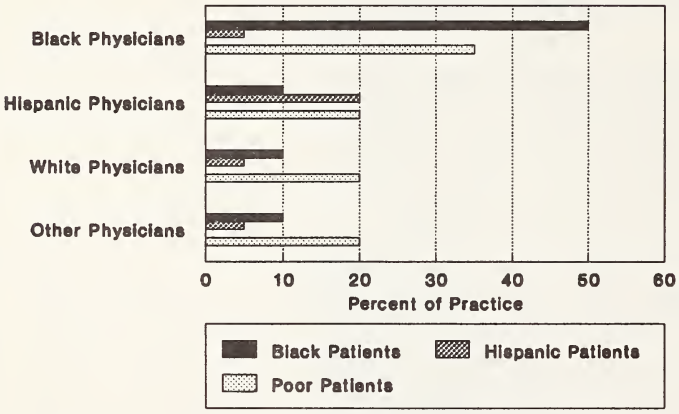
Traditionally, a physician in solo practice, maintaining an office as an independent entrepreneur, was considered the norm. However, entering solo practice requires substantial outlays for office, equipment, and support staff, which might entail a prohibitive level of indebtedness for

Figure 8
Types of Practice of Young Physicians by Race/Ethnicity



Source: Young Physicians Survey, 1987.

Figure 9
Racial Components and Poverty Status of the Patient Population



Note: Data represent median percent of patients in physician's practice.
Source: Young Physicians Survey, 1987.

young physicians already carrying a burden of educational debt. Nonetheless, 30 percent of young black physicians and 34 percent of young Hispanic physicians are engaged in solo practice (see Figure 8), and solo is an even more common minority practice arrangement in the South. A 1988 study showed that about 38 percent of all physicians were in solo practice.[33] Only about one-fourth of young white physicians are in solo practice, however.

Group practice between physicians with the same or complementing specialties has become more common. In this arrangement, the group owns the practice and the physicians are either partners or expect to become so. Group practice offers the advantages of economy of scale in support functions and time coverage. Group practice seems to be more important for young white physicians (40 percent are in group practice) than for minorities, especially blacks. Less than one-fifth of young black physicians and about one-third of young Hispanic physicians are in group practice.

Salaried physicians may work for an HMO, other physicians, an academic institution, government hospital, private business, or other type employer. Just over half of young black physicians and about one-third of young Hispanic and white physicians are salaried. Previous analysis of the Young Physicians data indicated that employed positions may act as rungs on a career ladder for young physicians. Hispanics are particularly likely to make the move from employed to self-employed practice.[34] The study found that young physicians with heavy medical-school debt have a greater tendency to change to self-employed practices within the first five years of practice, "indicating that they may have preferred such a practice in the first place but could not afford it," and found similar dynamics among young male and female physicians.

Service to poor and minority patients. As suggested by earlier studies, young black and Hispanic physicians are more likely to serve members of their own race and ethnic group than are other physicians. On

average, half of all patients seen by young black physicians are black (see Figure 9). By contrast, black patients, on average, account for only 10 percent of all patients served by white, Hispanic, or "other" minority physicians. Similarly, about 20 percent of the patients served by Hispanic physicians are Hispanic. Among non-Hispanic physicians, only 5 percent of the patient-load typically is comprised of Hispanic persons.

To some extent, practice type influences the racial and ethnic composition of a physician's patient-load. Black physicians in solo practice, for example, reported a higher proportion of black patients (on average, 70 percent) than other black physicians. All other physicians were more likely to serve black patients (on average, about 20 percent) if they practiced in a hospital staff position or other type of salaried setting. On the other hand, Hispanics in salaried settings were somewhat less likely to serve Hispanic patients than those in solo or group practice. There was almost no difference by type of practice in the proportion of Hispanic patients seen by non-Hispanic physicians. The race or ethnic characteristics of patients may be related to residential patterns and ability to pay for services.

Young black physicians also reported seeing a higher percentage patients they believed were "poor" (35 percent of caseload) than all other physicians. Black pediatricians consider over half (55 percent) of their caseload to be poor. Young black primary-care physicians report that 40 percent of their patients are poor.

In every practice arrangement, black physicians are most likely to serve poor patients. Among young physicians who work in salaried settings, the average caseload of poor patients was 50 percent for blacks, 40 percent for Hispanics, and 30 percent for "other" minorities and whites. Among solo physicians, the average caseload of poor patients was 35 percent for blacks, 20 percent for Hispanics and "other" minorities, and 15 percent for whites. In group settings, the percentages were closer, ranging from 15 to 20 percent of caseloads.

Earnings and Debt

Average annual income. Young black physicians earn less income per year, on average, than do young white, Hispanic, or other minority physicians (see Table 4). The median annual income in 1986 of African-American physicians was $66,000, compared with $75,000 for whites and Hispanics, and $70,000 for "other" minorities. These figures show income from medical practice after expenses, but before taxes.

Even among the highest-earning one-fourth of young physicians, young African-American physicians report the lowest annual earnings—a minimum of $90,000. The top one-fourth

Table 4
Median Annual Income of Young Physicians

Type of Physician	White	Black	Hispanic	Other Minority
All Physicians	$75,000	$66,000	$75,000	$70,000
Gender				
Men	80,000	68,000	75,000	75,000
Women	60,000	65,000	70,000	60,000
Specialty				
Primary Care	61,000	60,000	70,000	60,000
Non-Primary Care	90,000	78,000	80,000	75,000
Type of Practice				
Solo	85,000	80,000	90,000	80,000
Group	88,000	82,000	80,000	73,000
Salaried	65,000	60,000	65,000	60,000

Source: Young Physicians Survey, 1987.

of young white physicians earned a minimum of $102,000 per year; other minorities earned $95,000. The top quarter of young Hispanic physicians, on the other hand, reported earnings of at least $110,000. In large part, this difference is because of the relatively high percentage of young Hispanic physicians in solo practice—the type of practice that reported the highest annual earnings across every race/ethnic group among this group of top earners.

Gender differences. Young women physicians across all race and ethnic groups, on average, earned less than young men physicians. The income gap was greatest for whites (a $20,000 per year difference) and smallest for blacks ($3,000 per year). A previous analysis of these data found that "[t]hese income differences are due, in part, to specialty and employment setting choices. However, even after controlling for specialty, employment setting, years in practice, and hours worked per week, women still earn, on average, approximately $15,000 per year less than men."[35] Young women physicians simply are not getting the same monetary return on their educational investment that young men are.

Primary care versus other specialties. Primary-care physicians, on average, earn less than those who are not in primary care. Except for Hispanics, a young primary-care physician earned about $60,000 in 1986. Young Hispanics in primary care earned $70,000 on average. The earnings difference between Hispanics and other race/ethnic groups in primary care is probably because of a combination of factors—the type of patients served, the number of hours worked, and the greater share of Hispanics in solo practice. In general, however, primary-care physicians earned between $10,000 and $30,000 less than their counterparts in nonprimary-care specialties.

Nonprimary-care specialists earned between $75,000 and $90,000, on average, in 1986. Young African-American and other minority physicians were at the lower end of this range. Only in ob/gyn did young African-American and Hispanic physicians report greater average annual earnings than their white counterparts ($90,000 and $100,000, respectively, vs. $85,000). Another well-paying specialty for young black physicians (albeit lower than for whites) is the field of specialized surgery. The average annual earnings in this specialty for a young black physician was $90,000—the same as for a young black ob/gyn specialist. However, very few African Americans have entered this field. In general, however, these data suggest that all young minorities tend to receive a lower financial return on their educational investment in a medical specialty than do their young white counterparts.

Type of practice. The type of practice chosen also affects a young physicians earnings. Salaried physicians in all racial/ethnic groups reported the lowest average annual earnings in 1986—$65,000 for young whites and Hispanics and $60,000 for young blacks and "other" minorities. Average earnings for a solo practice ranged from $80,000 to $90,000 and for a group practice from $73,000 to $88,000. There was very little difference in average annual income (about $2,000 to $3,000) between solo and group practice for young white or African-American physicians. However, young Hispanics tended to earn an average of $10,000 more if they were in solo practice rather than group practice. "Other" minorities also reported higher average annual

earnings in solo practice than group practice.

Regional differences. Average annual income is also affected by regional and location differences. In every region except the Midwest, young black and Hispanic physicians earned less, on average, than their young white counterparts. Compared with whites, "other" minorities earned less in every region of the country.

In the Midwest, young black and Hispanic physicians achieved income parity with young whites, earning $80,000 per year, on average. In the South, the average earnings of young Hispanics were almost equivalent to that of young whites, but young African Americans earned an average of 15 percent less than their white counterparts. One factor in this difference may be the relatively high percentage of black physicians who practice in rural areas of the South. Fourteen percent of all black physicians in the South practice in rural areas. In other regions of the country, less than 4 percent of black physicians practice in rural areas. Because physicians in rural areas tend to have slightly lower average annual incomes than their urban counterparts, the greater proportion of black physicians in rural areas of the South would tend to depress the overall income measures. It should be noted that these income figures are not corrected for regional or local differences in cost of living.

Family characteristics. Although the medical profession is typically regarded as an avenue for upward social and economic mobility for many disadvantaged minorities, this promise of advancement does not translate into the same level of success for all. Young physicians who came from lower-income family backgrounds reported current incomes that were lower, on average, than those who grew up in higher-income families. The median annual income of young black physicians from lower-income backgrounds was $68,000—$12,000 below the average income level of those from upper-income families. For Hispanics, the difference was even greater—$65,000 versus $90,000. Whites showed a much smaller differential of only $5,000 ($75,000 for those from low-income homes versus $80,000 for those from high-income families).

Debt. Young black physicians in the survey reported leaving medical school with two-thirds more debt than white physicians— a median of $20,000 for blacks and $12,000 for whites, while the indebtedness of young Hispanic physicians was somewhat less than for whites ($10,000). These debt levels are lower than those reported by current graduates (see Table 2, page 7), possibly due to a rise in tuition in recent years (see Figure 4, page 7). Previous analysis of the Young Physicians Survey noted that the debt burdens of the more recent graduates in the survey tended to exceed the levels incurred by earlier graduates. The researchers cautioned that "unless potential remedies are devised (for example, enhanced financial-aid packages, reduced medical-school expenses, and so on) the increasing concentration of real educational debt may prove to be a barrier to entry into the profession and may work counter to the desired goal of increasing minority representation in medicine."[36] These researchers also noted that although there was no evidence that greater debt discouraged African Americans from entering specialties that involve lengthy training periods, there was some evidence that debt prevented

young black physicians from moving directly into self-employed practice upon leaving school.

Satisfaction

The practice of medicine has undergone substantial change in just the last decade. Many observers note that the costs of medical school have increased, students often incur large educational debts, the profession requires long and dedicated hours, the cost of malpractice insurance has increased (as have malpractice awards), there may be an "oversupply" of physicians in some areas and a growing "corporate influence" in the practice of medicine.[37] With major reforms under consideration to revamp the nation's health-care system, medical professionals are asking if the practice of medicine is becoming a less attractive career than it was in the past.

Respondents to the Young Physicians Survey were asked: "Given what you now know about medicine as a career, if you were in college today, would you go to medical school?" Two-thirds of all race and ethnic groups responded "yes." While it is reassuring that such a high proportion of young physicians would once again choose a career in medicine, the results nonetheless indicate some dissatisfaction (and apparently, a growing dissatisfaction) with the field. In sharp contrast, a 1973 study found 86 percent of physicians had no doubts about their decisions to become physicians.[38]

An earlier analysis of the Young Physicians Survey found that the group of physicians most likely to express second thoughts had higher proportions of white women, blacks, and to a lesser extent, Hispanics. The authors comment: "To the extent that young women and minority physicians serve as role models for potential future physicians, a disproportionately high level of second thoughts among them may 'send the wrong message.'"[39] As possible sources of dissatisfaction for minorities and women, the authors suggest: 1) there may be "a mismatch between expectations upon entering the profession and the realities of practice;" 2) "a poorer economic background, coupled with greater educational indebtedness [making] it difficult for many women and minority physicians to obtain the capital needed to establish a practice in a desirable setting;" 3) "discrimination [may] make it more difficult for women and racial minorities to practice in the most desirable settings."

SUPPLY OF MINORITY PHYSICIANS

This report has focused on medical students, medical residents, and young physicians. Relatively little is known about the more established or older minority physicians, because the sources most useful in studying physicians of all age groups have not been analyzed by race and ethnicity.

In general, other studies of the minority physician population sketch a portrait similar to the findings of the Young Physician Survey. For example, minority physicians are more likely than their white peers to be in primary care,[40] to practice in medically underserved areas,[41] and to have lower average annual incomes.[42] Minority physicians also tend to be younger in age than their white counterparts.[43] This would be expected, given that

medical-school graduating classes have included proportionally more minorities in the 1970s and the 1980s than in earlier years.

Minority Physician Supply in the 1990s

Estimating the numbers of minority physicians is problematic. Every source of information has its drawbacks. In examining census data, researchers have noted some inconsistencies between educational levels and occupational status, suggesting that census responses may overestimate the number of physicians. The Young Physicians Study provides an oversampling of minorities to support detailed analysis of minority physicians, but excludes older minorities. Membership organizations of physicians (such as the American Medical Association, National Medical Association, Interamerican College of Physicians and Surgeons, and Association of American Indian Physicians) often have data on their members, but this information may not be representative of all physicians or may be incomplete in terms of the demographic and practice characteristics of physicians listed.[44] Also, data from these sources are not comparable with one another or with data for all physicians. Surveys of graduates from traditionally minority medical schools may not be representative of the minority physician population as a whole.[45]

The 1990 Census reported that there are 586,715 physicians in the United States, plus 27,519 medical scientists and 2,743 teachers of medical sciences. As of this writing,

Table 5
Physician-to-Population Comparison by Race/Ethnicity, 1990

		Non- Hispanic					
	Hispanic	White	Black	American Indian	Asian	Other	Total
Number of Physicians as reported in 1990 Census	28,781	472,351	20,874	868	63,552	289	586,715
Estimated number of physicians adjusted for education level[1]	26,977	442,748	19,566	814	59,569	271	549,945
Percent of physicians	4.9%	80.5%	3.6%	0.1%	10.8%	0.0%	100.0%
Percent of population	9.0%	75.6%	11.7%	0.7%	2.8%	0.1%	100.0%
Physicians per 100,000 population	121	235	67	45	855	109	221

Note: American Indian includes persons who reported their race as American Indian, Eskimo, or Aleutian; Asian inclues persons who reported their race as one of the Asian or Pacific Islander groups.

[1] Number of physicians is based on 1990 Census estimates, reduced by 6.3 percent to compensate for overreporting. Methodology based on U.S. Public Health Service, Health Resources and Service Administration, Bureau of Health Professionals, *An In-depth Examination of the 1980 Decennial Census Employment Data for Health Occupations.* ODAM Report No. 17-85, July 1984.

Source: "Detailed Occupation and Other Characteristics from the EEO file for the United States." *1990 Census of the Population—Summary Reports.* CP-S-1-1, Table 1. U.S. Department of Commerce, Bureau of the Census, U.S. Government Printing Office, Washington, DC, 1992; and Decision Demographics analysis of the Census Bureau data.

no in-depth analysis of 1990 Census data has been carried out to exclude respondents who reported their occupation as physician, but obviously lack the educational qualifications. HRSA's analysis of 1980 Census data screened out 6.3 percent of respondents who did not have at least four years of education after high school.[46] Applying that factor to 1990 Census numbers yields an estimate of 549,945 U.S. physicians (see Table 5, page 19). Of this total, 19,566 were African American (3.6 percent of all physicians), 26,977 were Hispanic (4.9 percent), 59,569 were Asian Americans (11.8 percent), and 814 were American Indian (about 0.1 percent). These percentages were lower than the proportions of blacks, Hispanics, and Asians in the U.S. population. In 1990, about 11.7 percent of the U.S. population was black and about 9.0 percent was Hispanic.

This analysis indicates that overall, there were about 221 physicians available to serve every 100,000 persons in the United States in 1990. For the underrepresented minority population, however, the estimated ratios were much lower—67 black physicians for every 100,000 African Americans, and 121 Hispanic physicians for every 100,000 Hispanics.[47] Although there is room for disagreement among researchers and professional groups as to the actual number of minority physicians practicing medicine in the United States, it seems evident that the number of physicians from traditionally underrepresented minority groups are well below population parity.*

Outlook

What is the outlook for the supply of minority physicians? Several factors affect the supply: the growth rates of minority populations, especially those influenced by immigration; the rising costs of medical-school education; the size of the pool of pre-med minority students; differential rates of medical-school attrition; funding levels for financial assistance for minority students;[48] and the effectiveness of minority recruitment and retention programs by U.S. medical schools.

In a 1986 study, the number of black physicians was projected to increase to 28,500 and the number of Hispanic physicians to 23,700 by the year 2000.[49] This would increase the number of black physicians by more than 80 percent from 1985 levels and raise the number of Hispanic physicians by about 35 percent. Under this scenario, physician-to-population ratios would improve for the African-American population (reaching 77 per 100,000) but worsen for Hispanics (estimated to be 94 per 100,000). Despite the expected growth in numbers of black and Hispanic physicians, then, both groups would continue to be underrepresented

* The Interamerican College of Physicians and Surgeons, for example, believes that there are many more Hispanic physicians than the 1990 Census data suggest—about 30,000, including 11,000 graduates of U.S. medical schools and 19,000 graduates of foreign medical schools. Of these, about 6,500 are said to be practicing in Puerto Rico. See Maria L. Garcia and Irma Alemar, *ICPS Database Assessment Project, Final Report* (Washington, DC: Interamerican College of Physicians & Surgeons, 1992). Conversely, an estimate of the number of African-American physicians (16,242) prepared for the National Medical Association is lower than the census estimate.

and underserved compared to the white population. The gap in physician-to-population parity would remain.

Furthermore, since the 1986 analysis, the Hispanic population has grown faster than anticipated, further widening the gap. What is more, medical-school graduation rates of underrepresented minorities have not kept pace with HRSA's mid-1980s projections.

The AAMC has adopted the goal of nearly doubling the number of underrepresented minorities entering medical school by the year 2000: Project 3000 by 2000.[50] This means that by the year 2000, U.S. medical schools will matriculate at least 3,000 students from underrepresented minority populations. The project, which focuses on creating partnerships between medical schools and neighboring high schools and undergraduate colleges, will have some success only if it receives broad commitment. Another unknown factor is the financial-aid programs or other incentives to boost the supply of minority physicians that might be adopted as part of the health-care reforms to be launched in the 1990s.

It seems unlikely that the set of dynamics now in place will eliminate the problem of underrepresented minorities in medicine in the foreseeable future. In assessing the future supply of minority physicians, it is clear that the nation will have to run hard to stay in place, and even harder to get ahead.

Methodology of the AMA Survey of Young Physicians

This report provides the most detailed analysis to date of the Young Physicians Survey of the American Medical Association's (AMA) Education and Research Foundation. The 1987 telephone survey, funded by the Robert Wood Johnson Foundation, drew a random sample of 8,651 physicians and an oversample of 1,692 physicians identified as black or Hispanic from the AMA Physician Masterfile. The physicians were identified as white, black, Hispanic, or "other" minority. Asians and Native Americans were included in the other minority group, but were not oversampled, so that the utility of this data to analyze their situation is limited. Three-fourths of young physicians classified as "other minority" attended foreign medical schools, which probably indicates a substantial proportion of immigrants among them. Hispanics of any race were counted as Hispanic, so that none of the racial categories contains Hispanics.

Young physicians were defined as those under age 40, who had been in practice more than one, but fewer than seven years after completing residency and/or fellowship training. The study group was limited to those working at least 20 hours per week in patient care. Most of the minority doctors interviewed graduated from medical school between 1974 and 1984, attending medical school after the affirmative action programs discussed earlier were in place. The present report limits young physicians to those with fewer than six practice years, a practice commonly followed in analyzing the survey.

Telephone interviews were completed between April and November 1987. Of the 9,263 young physicians contacted, 5,865 (63.3 percent) completed the survey; 3,398 physicians (36.7 percent) refused or did not complete the interview. Physicians who reported working less than 20 hours per week in patient care were excluded (less than 10 percent of all young physicians). Results have been statistically adjusted to compensate for nonresponse bias associated with respondents' race/ethnicity, age, specialty, location of medical school (U.S. or foreign), and AMA membership status. Some of the data discussed here was previously reported in Alan C. Cohen *et al.*, "Young Physicians and the Future of the Medical Profession." Other analyses of this data include Richard J. Willke, "Practice Mobility Among Young Physicians," *Medical Care* 29, no. 10 (October 1991) 977-988; and Hadley, *et al.*, "Young Physicians Most and Least Likely to Have Second Thoughts About a Career in Medicine," *Academic Medicine* 67, no. 3 (March 1992): 180-189.

Reference Table Young Physicians Survey, 1987

	White	Black	Hispanic	Other	Total
Estimated total	**54,200**	**2,500**	**2,700**	**7,300**	**66,700**
	81.3%	**3.7%**	**4.0%**	**11.0%**	**100%**
Gender					
Male	80.3%	68.2%	81.4%	66.6%	78.4%
Female	19.7%	31.8%	18.6%	33.4%	21.6%
Total	100.0%	100.0%	100.0%	100.0%	100.0%
Location					
SMSA	82.6%	92.6%	90.3%	82.1%	83.2%
Non-SMSA	17.4%	7.4%	9.7%	17.9%	16.8%
Total	100.0%	100.0%	100.0%	100.0%	100.0%
Region					
Northeast	24.0%	24.2%	19.4%	23.7%	23.8%
Midwest	23.2%	15.3%	11.1%	20.0%	22.0%
South	33.1%	45.9%	43.5%	27.2%	33.4%
West	19.7%	14.5%	26.0%	29.1%	20.8%
Total	100.0%	100.0%	100.0%	100.0%	100.0%
Specialty					
Primary care	38.3%	43.5%	45.0%	37.4%	38.7%
Non-primary care	61.7%	56.5%	55.0%	62.6%	61.3%
Total	100.0%	100.0%	100.0%	100.0%	100.0%
Type of practice					
Solo	23.4%	30.4%	34.3%	40.1%	25.9%
Group	40.2%	18.0%	31.7%	25.5%	37.4%
Other	36.0%	51.5%	33.8%	33.2%	36.1%
Unknown	0.5%	0.1%	0.3%	1.1%	0.5%
Total	100.0%	100.0%	100.0%	100.0%	100.0%
Mean income level					
Primary care	$67,800	$62,400	$76,300	$65,000	$67,700
Non-primary care	$103,800	$87,300	$107,200	$89,300	$101,800

Source: Young Physicians Survey, 1987.

Notes

[1] Stephen N. Keith, Robert M. Bell, August G. Swanson, and Albert P. Williams, "Effects of Affirmative Action in Medical Schools: A Study of the Class of 1975," *New England Journal of Medicine* 313, no. 24 (1985): 1519-1525.

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[11] Keith, *et al.*, "Effects of Affirmative Action."

[12] *Ibid.*

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[17] *Ibid.*

[18] Robert G. Petersdorf, "Financing Medical Education," *Academic Medicine* 66, no. 2 (1991):61-65.

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[21] Phillip R. Kletke, William D. Marder, and Anne B. Silberger, "The Growing Proportion of Female Physicians: Implications for U.S. Physician Supply," *American Journal of Public Health* 80, no. 3 (1990): 300-304.

[22] These data present a more moderate picture of geographic concentration than previous studies. For example, a study of graduates of Howard University found only 3 percent of black respondents practicing in small towns or rural areas. See Davis G. Johnson, Sterling M. Lloyd, Jr. and Russell L. Miller, "A Second Survey of Graduates of a Traditionally Black College of Medicine." *Academic Medicine* 64, no. 2 (February 1989): 87-94.

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